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(54) Title: METHOD OF OPTIONALLY TRANSFERRING INFORMATION
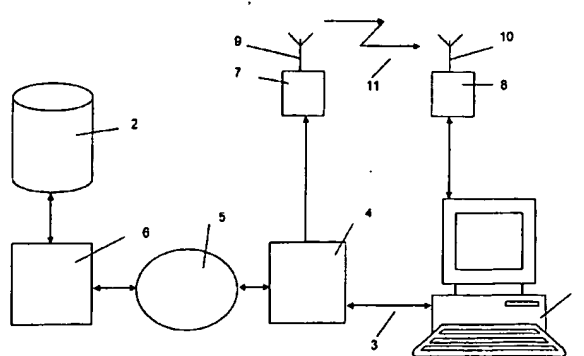
(57) Abstract: A method of sending large volumes of information to one or more personal computers (1) or corresponding devices
from a database (2) or corresponding device, such as a company's product line stored in connection with the company's home page
or a portal, wherein the personal computer (1) can be connected, via a communications network (5), such as the Internet, to said
database (2) which includes a computer in the form of a server (6), wherein the database contains said information and wherein a user
is able to ask for information during such a connection via the personal computer (1), wherein a digital network (7-10) having a high
transmission speed, such as a DAB radio network, can be caused to send said requested information and wherein the information is
caused to be received by a receiver (8) in the possession of the user, wherein requested information in the database (2) is given an
identification code which is sent to said receiver (8), wherein said receiver is caused to analyse the received DAB signal with regard
to said identification code. The method is characterised by providing a so called proxy server between the personal computer (1) and
the server (6), wherein the proxy server (4) is caused selectively to either forward the collected information to the transmitter means
(7) for transmission of said information via said radio network (7-10), so that said information can be received in the receiver (8), or
alternatively to be transparent for the exchange of information between the server (6) and the personal computer.

METHOD OF OPTIONALLY TRANSFERRING INFORMATION

The present invention relates to a method of transferring large volumes of information to a personal computer or to some corresponding device.

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One problem with the transmission of large volumes of information to a personal computer or to some corresponding device, and then particularly to a personal computer that can be connected to a given company or to a database via a modem, is that the transmission of such information to the personal computer takes a relatively long time to carry into effect.

10 This means long connection times and long response times in respect of the information desired by the user.

One example in this regard is Internet shopping, so-called network commerce. When a person wishes to do business over the Internet with a company that has a very large

15 assortment of goods which are also illustrated pictorially or graphically, the total amount of information to be transferred will be extremely large, even though the information relates solely to a certain group of goods, such as to clothes or furniture for example.

Another example resides in a user wishing to download a large file of some other kind,

20 such as a music file, a film file or software.

The problem is thus that the transmission of such information from the company to the user takes too long.

25 Another problem is that the user must remain connected to the company during the time taken by the user in selecting the goods desired, for instance clothes. In addition to the time taken in sending the actual information, the time during which the user must remain connected during the process of goods selection is also very long.

30 These problems are solved by the present invention.

Thus, the present invention relates to a method of sending large volumes of information to one or more personal computers or corresponding devices from a database or its like, such as the product line of a company stored in connection with the company's home page or a

portal, wherein said personal computer can be connected via a communications network, such as the Internet, to said database, which includes a computer in the form of a server, wherein said database includes said information and wherein a user is able to ask for information via the personal computer during this connection, wherein a digital network that has a high transmission rate, such as a so-called DAB radio network, can be caused to send the requested information and wherein said information is therewith caused to be received by a receiver to which the user has access, wherein the requested information held in the database is given an identification code, which is transmitted to said receiver, wherein the receiver is caused to analyse the received DAB signal with respect to said identification code, and wherein the method is characterised by providing a so called proxy server between the personal computer and said server; selectively causing the proxy server to either forward the information collected to the transmitter means for transmission of said information via the radio network so that this information can be received in said receiver, or, alternatively, to be transparent for the exchange of information between the server and the personal computer; wherein when it is chosen to transmit the requested information from said server via said network to said receiver via said proxy server in response to a request for certain information to the personal computer from the server, said proxy server is caused to fetch this information from the server and therewith check that the information is complete, i.e. that all information packets have been obtained, and wherein the proxy server is caused to store the fetched complete information and forward said information to the transmitting means.

An exemplifying embodiment of the present invention will now be described in more detail partly with reference to the accompanying drawing, in which

- Figure 1 is a block diagram that illustrates the invention.

Although the invention is described below with reference to network commerce or network shopping in respect of a company that has a very wide assortment of products, it will be understood that the invention may also concern the transmission of some other form of information where a user requires large volumes of information through which to sort, choose or order goods or services.

Figure 1 illustrates a method of sending large volumes of information to a personal computer 1 or some corresponding device from a database 2, or the like, such as a

company's product line stored in connection with the company's home page or a portal, wherewith the personal computer 1 can be connected via a communications network 5, such as the Internet, to said database 2 which includes a computer 6 that contains said information, and wherein a user can request information via the personal computer 1 during the connection.

The proxy server 4 is caused to ensure that requested information contained in the database 2 is given an identification code, which is caused to be sent to the receiver 8. The identification code is conveniently sent to the personal computer 1 via the communications line 3, and from there to the receiver 8.

The personal computer 1 is connected to a communications line 3 through the medium of a modem or some corresponding device.

The receiver 8 is caused to analyse the received DAB signal with regard to said identification code. Requested information is caused to be sent to said receiver 8 by said server 6, via the proxy server 4 and via said DAB network. The receiver 8 starts to receive said information after the identification code has been received by said receiver 8. Actual reception of the information takes place in the absence of an active communications link between the personal computer 1 and the server 6. There is thus no interaction between the personal computer 1 and the server 6 during the reception of said information. The information thus received is then caused to be sent from the receiver 8 to the personal computer 1.

The transmission rate via a DAB radio network may, at present, be as high as 1.5 Mbits/s. This enables a very large volume of information to be sent from the database 2 to the personal computer 1 in a very short space of time.

When downloading from the Internet, normal procedure includes continuously checking that the packets into which a data file has been divided reach the correct address. Consequently, there is required a two-way connection, such as between the personal computer 1 and the server 6, during the entire downloading process.

According to the present invention, the DAB network is used solely during the actual transmission of said information, wherein the system in this mode consists of a one-way connection between the DAB transmitter and the DAB receiver in the absence of any influence from a connection between the user's computer and said database. However, it may be necessary to switch on the personal computer 1 in connection with the DAB transmission, in order to check that all information-containing packets have been received, and if so is not the case to search for missing packets.

A further server 4, the so called proxy server, is therefore provided between the personal computer 1 and the server 6 in accordance with the invention. When a request for certain information is made to the personal computer 1 from the server 6, the proxy server 4 is caused to fetch this information from the server 6 and therewith check that the information is complete, in other words that all information-containing packets have been obtained. The proxy server is caused to store this complete information fetched from the server.

The proxy server is also adapted to selectively either send the fetched information to the transmitter means 7 for transmission of the information such as to enable it to be received in the receiver 8, or, alternatively, to be transparent for an exchange of information between the server 6 and the personal computer 1.

The choice as to how the information shall be forwarded can be made from at least the personal computer 1.

This choice is made prior to said information being collected from the server 6 to the proxy server 4.

Since the information to be fetched from the server 6 has been specified to the proxy server 4, the personal computer 1 need not be in operation when it is chosen to transfer the information to the personal computer 1 via a DAB transmission. The two-way communication required between two communicating computers thus only takes place between the server 6 and the proxy server 4.

The proxy server 4 may be placed anywhere that is appropriate, such as in a company location that provides computer services or an Internet operator.

The technology required to transfer information from one computer 6 to another computer 1 by means of DAB techniques is described in Swedish Patent Specification No. 9704101-6.

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In brief, the invention described in said patent specification involves the intermediate storage of information from a transmitting computer prior to the transfer 11 of said information via a DAB transmitter 7, wherein the information is transferred generally continuously. The information is received by a DAB receiver and stored intermediately in
10   said receiver prior to being sent to a receiving computer.

Transmitter and receiver are equipped with a respective antenna 9, 10.

In addition to a DAB transmitter, the transmitter means 7 includes in this case the circuits
15   required for receiving information from the computer 6 via the proxy server 4, intermediate storage of said information and the transmission of said information. Correspondingly, the receiving means 8 includes circuits for receiving the transmitted information the intermediate storage thereof and its transmission to the personal computer 1.

20   Because the information is broadcasted, it is possible for an unlimited number of different receivers, or at least a large number of different receivers, to receive the information simultaneously. In order for this technique to be utilised effectively, it is therefore beneficial for several receivers to receive the same information at one and the same time.

25   According to one preferred embodiment, the information requested is caused to be sent at certain times or as soon as possible. According to another embodiment, when information has been requested by the personal computer, the proxy server 4 is caused to send a message to the personal computer as to when the information will be sent.

30   Taking Internet shopping as an example, a person is able to connect herself/himself to a company's home page via her/his personal computer, modem, etc., and look through the commodities offered by the company. The transmission of a total overview of the goods available with respect to furniture, for instance, illustrated with pictures, would take too long during said connection to be an attractive option. The present invention enables the

person to ask to be sent the company's entire catalogue, for instance. The person may then be informed that the catalogue will be sent at a certain time of the day. All that the person need do is to ensure that the receiver 8 is switched on at that time of the day.

5   When the information has been received and stored in the personal computer 1, the person is able to study the various pieces of furniture in peace, without being connected to the company concerned. The person is therewith able to choose the furniture desired and then connect to the company and place his/her order.

10   It is obvious that the different commodities or goods on offer can be looked through more quickly when these commodities are downloaded into the personal computer. Moreover, the person need not be connected to the company during the whole of the period in which the commodities are studied, resulting in lower costs.

15   According to another preferred embodiment of the invention, the information to be sent is given the form of an information block that includes a request for specific information. For example, the person concerned may not wish for all information to be sent. For instance, the information in question may relate to travel information where the person is interested solely in a given region, such as Mediterranean countries. In this example, a travel agency

20   may send information covering different areas at different times and send the entire travel offer at other times. Because the inventive method enables large volumes of information to be transmitted, the amount of information that can be sent concerning a given holiday destination or holiday resort is far greater than that which can be included in a travel brochure.

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In addition to network shopping or network commerce of the aforesaid kind, the inventive method may also be applied in the transmission of news, e.g. in the form of newsprint, in the aforesaid manner. The invention is not restricted to the transmission of any particular sort of information.

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It will be evident that the present invention solves the problems mentioned in the introduction.

Although the invention has been described with reference to a number of exemplifying embodiments, it will be understood that the present invention can be applied with a transmission system other than said DAB system, provided that the system is a rapid digital broadcasting system. Another such system may be a satellite-based system.

It will therefore be understood that the present invention is not restricted to the aforedescribed exemplifying embodiments thereof, but that variations can be made within the scope of the accompanying Claims.

CLAIMS

1.   A method of sending large volumes of information to one or more personal
computers (1) or corresponding devices from a database (2) or corresponding device, such
as a company's product line stored in connection with the company's home page or a
portal, wherein the personal computer (1) can be connected, via a communications network
(5), such as the Internet, to said database (2) which includes a computer in the form of a
server (6), wherein the database contains said information and wherein a user is able to ask
for information during such a connection via the personal computer (1) wherein a digital
network (7-10) having a high transmission speed, such as a DAB radio network, can be
caused to send said requested information and wherein the information is caused to be
received by a receiver (8) in the possession of the user, wherein requested information in
the database (2) is given an identification code which is sent to said receiver (8), wherein
said receiver is caused to analyse the received DAB signal with regard to said
identification code, wherein the method is **characterised** by providing a so called proxy
server between the personal computer (1) and the server (6), wherein said proxy server (4)
is caused selectively to either forward the collected information to the transmitter means
(7) for transmission of said information via said radio network (7-10), so that said
information can be received in the receiver (8), or to alternatively be transparent for the
exchange of information between the server (6) and the personal computer (1), wherein
when it is chosen to transfer requested information from the server (6) via said network (7-
10) to said receiver (8), via the proxy server, the proxy server (4) is caused, in response to
a request for certain information to the personal computer (1) from the server (6), to fetch
said information from the server (6) and therewith check that the information is complete,
i.e. that all packets of information have been received, and wherein the proxy server is
caused to store the complete collected information and to forward said information to the
transmitter means (7).

2.   A method according to Claim 1, **characterised** by causing the transmission of
information via the radio network (7-10) to be effected without the influence of a possible
communications link from the personal computer (1) to the server (4); and by causing the
received information to be sent to the personal computer (1).

3.   A method according to Claim 1 or 2, **characterised** by making said choice prior to fetching said information from the server (6) to the proxy server (4).

4.   A method according to Claim 1, 2 or 3, **characterised** by causing said information to be sent in the form of an information block that includes specific information requested by the personal computer (1).

5.   A method according to Claim 1, 2, 3 or 4, **characterised** by causing the requested information to be sent at given time points or as soon as possible; and by causing the proxy server (4) to send to the personal computer (1) a message as to when information requested by the personal computer (1) will be sent.

6.   A method according to any one of the preceding Claims, **characterised** in that the digital network is a DAB radio network.

FIG 1